marine shells now occur at the elevation of 3,000 feet which must have been elevated to that amount. The same may be said of the Eocene. It is, however, important to note that the uplifting of the Cretaceous and Eocene sediments about the close of the Tertiary was connected with the Klamath Mountains rather than that of the Cascade range.

Faulting that has played so large a rôle in the development of the Sierra Nevada and the coast range of California has not given general features to the volcanic mass of the Cascade range. Small faults are common in the lavas southeast of Lassen Peak, forming lines of bluffs and bringing the ground water to the surface in large springs, a feature which is common also in the Klamath Lake region and, as pointed out by Russell, along other portions of the range, but these small faults have no effect on the general form of the range.

Along the western base of the range in the Willamette Valley, Washburne has pointed out some features suggesting a fault, but as yet its existence is a matter of doubt. There is no great relief feature in that region that appears to have originated in faulting. Farther south in the Rogue River valley there is a regular practically conformable succession from the Cretaceous through the Tertiary sediments to the overlying lavas of the Cascade range. Small faults occur in the Eocene coal beds which dip beneath the range but the faults are connected with the local intrusion of the lavas and not of large extent connected with the uplifting of the range.

While it is evident that the lavas of the Cascade range are faulted, I think Russell has greatly overestimated the effect of the faulting as a factor in the upbuilding of the range, which, as it seems to me, is a great pile chiefly of viscous andesitic lavas from many confluent cone-capped vents, in strong contrast to the coneless basalt plains in the formation of which the high degree of fluidity in the outflowing lava was the most important factor.

THE GREAT VALLEY

Of all the relief features of our Pacific coast mountain belt the least impressive and yet the most important is the Great Valley where live by far the larger number of people, with railroads for transportation, and produce from the alluvial soil washed in from the adjacent mountain ranges the main portion not only of their own subsistence, but much for other parts of the world. The great valley extends throughout the entire mountain system, but not without interruptions, and in fact these interruptions are so marked in certain localities, as between the heads of the Sacramento and Willamette rivers, where the valley is obscured by cross folds from the Klamath Mountains, that some geologists have doubted its continuity. When these cross folds and their effect upon the great valley are clearly understood it will be recognized that the valley is the great feature of the Pacific mountain belt, with its history deeply buried in and beneath an enormous mass of sediments.

J. S. DILLER

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THE INTERNATIONAL COMMISSION ON BOUNDARY WATERS

MR. ADOLPH F. MEYER, associate professor of hydraulics in the college of engineering of the University of Minnesota, has been engaged as consulting engineer for the International Joint High Commission, in connection with investigations made on boundary waters. These investigations have extended over the past two and a half years, and in this work Professor Meyer has been associated with Mr.

Arthur V. White, of the Conservation Commission of Canada. This gives the United States one consulting engineer and Great Britain a second. The work has involved extensive investigation relating to the regulation of the levels of the Lake of the Woods, and the utilization of the waters tributary to that lake. Water power and water supply, navigation, fishing and agriculture are the chief interests concerned. Minnesota is vitally interested in this investigation inasmuch as about 11,000 square miles of the drainage basin of the Lake of the Woods lie in this state.

A dam controlling the level of the Lake of the Woods is located in Canadian territory. The shores of the lake on the Canadian side, particularly in the vicinity of the dam, are very high, but on the Minnesota side the slope of the land toward the lake is only a few feet per mile.

Settlers have been complaining to the United States government that the lake has been materially raised and that much of their land is being flooded. The first complaints were made more than twenty years ago. During the wet year of 1905 renewed protests were sent to the Department of State, but all efforts at securing settlement through diplomatic channels failed, until finally, soon after the appointment of the International Joint Commission in 1910, this question of the regulation of the levels of the Lake of the Woods was referred to this commission.

The International Joint Commission is a permanent tribunal with powers of adjudication, created by treaty between Great Britain and the United States. While the work of this commission thus far has concerned primarily the use of boundary waters along the Canadian frontier, the powers conferred by the treaty are very broad and include, in fact, the decision of practically all matters of dispute between citizens of the United States and Canada, referred to this body by their respective governments.

All obstructions or diversions of boundary waters affecting the natural level or flow of such waters on either side of the line must receive the approval of this commission.

One of the important questions decided by the commission during the past year was that of the application of the power companies at Sault Ste. Marie, for approval of the obstruction, diversion and use of the waters of the St. Marys' River for the development of power. Another important question now under investigation by the commission is that of the pollution of boundary waters.

THE AMERICAN AMBULANCE HOSPITAL IN PARIS

WESTERN RESERVE UNIVERSITY is the first to respond to a suggestion made by officers of the American Ambulance Hospital in France, that leading American medical schools send to France corps of men to take charge of one of the hospital's services of 150 beds. The medical board of the American Ambulance Hospital, through Dr. Joseph Blake, has requested Dr. Crile to be the leader in the proposed plan. The expedition will be financed by the trustees and friends of the university and the Lakeside Hospital and left for France on December 30.

The American Ambulance Hospital was established by the trustees of the American Hospital at Paris almost immediately after the outbreak of hostilities. Ambassador Myron T. Herrick was actively interested in the project and the building of the Lycèe Pasteur at Neuilly was secured. The present capacity of the hospital is 450 beds, divided into services of 150 beds each. The suggestion made by the medical board is that several of the leading medical schools of the United States send out staffs to take charge in succession of one of the hospital services of 150 beds, with operating rooms and equipment, for periods of three months each. According to the proposed plan the corps from the several universities would follow one another without interruption of service. The officials of the Ambulance Hospital believe that the opportunity is unrivalled for humanitarian service and for clinical experience and medical research.

Dr. du Bouchet is the executive head of the hospital and represents the institution with